PEI-05/0018



July 7, 2005

Mr. Keith Quigley CH2M WG Idaho, LLC Idaho Cleanup Project Mail Stop5105 1955 N. Fremont Avenue Idaho Falls, ID 83415

Re: Review of Radiation Exposures for INL INTEC Tank Farm, January 2002-June 2005

Dear Keith,

A review of INEEL RWP printouts for INL CPP Tank Farm for January 01, 2002 through June 15, 2005 (attached) was reviewed by John Martin, CHP of Portage Environmental, Inc. The purpose of the review was to provide additional technical basis for worker tank cleaning dose projections associated with Tank Farm Facility waste determinations.

Based upon information exchanged and discussions held during our meeting held on July 06, 2005, the following assumptions have been used in analyzing the attached data:

- (1) Electronic dosimetry results cited for RWPs with process line/valve/box descriptions can generally be regarded as maintenance related and therefore removed from the doses tabulated for tank cleaning activities.
- (2) The balance of the dosimetry results would be used to derive average collective worker doses for each of the seven remaining tank cleaning activities by summing these printout table values and dividing by seven.

Calculations:

<u>Total worker radiation exposure</u> = 1,084 person/mrem (2002 printout total) + 2,255 person/mrem (2003 printout total) + 618 person/mrem (2004 printout total) + 974 person/mrem (2005 printout total through 6/15/05) = 4,931 person/mrem

Total worker radiation exposure associated with process line/valve/ box is calculated by summing the following RWP numbers and their respective dosimetry values:

RWP 3100302800	81 mrem
RWP 3100302801	18
RWP 3100302900	46
RWP 3100306300	03
RWP 3100321800	692
RWP 3100321801	503
RWP 3100321802	95
RWP 3100322200	04
RWP 3100322201	04
RWP 3100340201	121
RWP 3100340300	09
RWP 3100358701	103
RWP 3100359900	09
RWP 3100505201	44
RWP 3100507903	164
RWP 3100507905	248
RWP 3100507906	62
RWP 3100507907	06
RWP 3100508001	44
RWP 3100508002	147
RWP 3100508003	165

Worker Process Line/Valve/Box-Dose = 2,568 person/mrem

Worker Tank Cleaning Dose = Balance of RWP dosimetry results

Balance = 4,931 (total) -2,568 (process line/valve/box) = 2,363 person/mrem

Average Collective Worker Dose for the Remaining 7 Tanks

2,363 person/mrem divided by 7 yields:

337.57 or 338 person/mrem

Please contact me at 208-227-1357 or <u>imartin@portageenv.com</u> for any additional questions or comments regarding tank cleaning dose projection data presented in this letter.

Sincerely,

John Martin CHP MPH

cc: Portage Letter File

Lisa Aldrich, PEI Document Control

RWPs by Revision for Selected Units

Printed on: 06/15/2005
Begin and End Dates: 01/01/2002 Thru 12/31/2002

31002304 01	3100229200	31(002268 01	3100226701	3100225801	31002258 00	3100225400	3100218601	3100218200	31002170 04	31002170 03	3100217001	31002154 01	3100215400	3100211400	3100200707	3100200701	31002006 03	31002006 02	31002006 00	Z0 ES3 02	3100185301	3100185300	3100175802	3100175801	31001758 W	RWP No.	ment pand
2 00	3,80	6.2	6,1	58.3	10.3	1.9	110.5	(17.7	186.2	128.8		27.5	73.4	6.7	Ç.)				(10.3	85.9	28.5	28.4	2,012.6	635.0	98.5	Jual Hours	CPP TANK FARM
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50	50	25	25	50	50	250	240	150	150	150	150	100	100	10	100	100	100	100	100	100	100	100	450	450	450	Appluveu Estimate	
0	.0	0	0	0	0	0	0	0	0	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	•	Hrs	
CLOSED	COMPLI	COMPLI	COMPLI	COMPLI	CLOSED	CLOSED	CLOSED	COMPLI	COMPLI	CLOSED	CLOSED	COMPLI	CLOSED	CLOSED	COMPLI	CLOSED	COMPLI	CLOSED	CLOSED	COMPLI	CLOSED	CLOSED	COMPLI	CLOSED	CLOSED	Status	
) REMOVE HATCHES AND INITIAL RADCON SURVEYS CPP 722 & 721.	COMPLETROUTINE ENTRIES INTO C-29 AND C-31 VALVE BOX CAGE AREAS.	COMPLETTANK FARM CLOSURE REMOTE VIDEO INSPECTIONS, SETUP & SURVEYS.	COMPLETS YEAR PM ON VALVES IN CONTROL PITS ON THE TANK FARM	COMPLET DECON TANK FARM VALVE BOXES, RISERS, TRENCHES & RADCON SURVEYS	DECON TANK FARM VALVE BOXES,RISERS,TRENCHES & RADCON SURVEYS) ENTRY, TRANSFERS AND SURVEYS IN C-29 VALVE BOX CAGE AREA.	PULL CORROSION COUPONS FROM TANK FARM VESSELS.	COMPLET WO # 42563-02 TANK FARM VES-WM-187 VIDEO INSPECTION	COMPLETTANK FARM JET, PROBE AND CAMERA INSTALLATION ,REMOVAL & DEMO	TANK FARM JET, PROBE AND CAMERA INSTALLATION ,REMOVAL & DEMO) TANK FARM JET, PROBE AND CAMERA INSTALLATION ,REMOVAL & DEMO	COMPLETTANK FARM WEATHER COVER, SHIELD PLUG AND GENERAL HATCH PULLS) TANK FARM WEATHER COVER, SHIELD PLUG AND GENERAL HATCH PULLS	WO# 42563 CORE DRILL, CHIP AND SAW RISER BLOCKS TANK FARM	COMPLETTANK FARM DEMO TENT ROUTINE WORK AND SURVEYS.	TANK FARM DEMO TENT ROUTINE WORK AND SURVEYS.	COMPLETTANK FARM DECON TENT ROUTINE WORK AND SURVEYS.) TANK FARM DECON TENT ROUTINE WORK AND SURVEYS.	TANK FARM DECON TENT ROUTINE WORK AND SURVEYS.	COMPLETANK FARM REACH ACROSS, GLOVEBAG AND GLOVEBOX GENERAL WORK	TANK FARM REACH ACROSS, GLOVEBAG AND GLOVEBOX GENERAL WORK	TANK FARM REACH ACROSS, GLOVEBAG AND GLOVEBOX GENERAL WORK	COMPLETANK FARM GENERAL WORK ACTIVITIES.) TANK FARM GENERAL WORK ACTIVITIES.	TANK FARM GENERAL WORK ACTIVITIES.	Description	

RWPs by Revision for Selected Units Printed on: 06/15/2005

Begin and End Dates: 01/01/2002 Thru 12/31/2002

RWPs by Revision for Selected Units

Printed on: 06/15/2005

Begin and End Dates: 01/01/2003 Thru 12/31/2003

CPTE

FARIM Approved ED Approved ED Festimate 6 499 115 200 7 100 88 100 22 250 8 250 5 50 10 50 10 50 10 25 10 25 3 50 5 100 5 100 5 100 6 100 7 100 8 100 9 100 100 100 5 100 5 100 6 100 7 100 7 100 8 100 9	DAC Hrs.		25.4 16 250 0 33.4 46 100 0 30.0 3 25 0	25.4 18 250 0 33.4 46 100 0	25.4	0.7 P. 19 7.5		81 250 0	31003027 00 55.4 0 25 0 COMPLETREPAC		5 50 0	5 100 0	3 50 0	0 25 0	134.5 9 100 0	33.1 10 50 0	0 150 0	0 50 0	5 50 0	0 250 0	8 250 0	22 250 0	0 001 88	7 100 0	115 200 0	166 499 0	499 0	Estimate Hrs Status	THE CPP TANK FARM	gennou!
DAC Hrs 0		COMPLETRCRA INSPECTIONS OF B-3 AND B-4 FROM THE TOP. RADCON SURVEYS	COMMUNICATION OF A AND A FROM THE TOP PAINCON SUBVEYS	COMPLETE CONTROL AND ADAPTED BY DECISION DECISIO	COMPLETEOSTTON VALVES IN B-3 AND B-4 TENTS, RADCON SURVEYS.	COMPLETTANK FARM VALVE BOX B-3 & B-4 INSPECTIONS AND MEASUREMENTS.	COMPLEIDECON TANK FARM VALVE BOXES, RISERS & TRENCHES. RADCON SURVEYS	CLOSED DECON TANK FARM VALVE BOXES, RISERS & TRENCHES. RADCON SURVEYS	COMPLETREPACKAGE/SEGREGATE TOOLS AND EQUIPMENT TANK FARM DEMOTENT	COMPLETINITIAL ENTRY SURVEYS OF TANK FARM VALVE BOXES. B-3 AND B-4	CLOSED INITIAL ENTRY SURVEYS OF TANK FARM VALVE BOXES. B-3 AND B-4	COMPLETREPAIR/REPLACE PUV-WM-335 REACH ROD & ASSOCIATED EQUIPMENT.	COMPLETINITIAL ENTRY SURVEYS OF TANK FARM VALVE BOXES.	COMPLETTANK FARM STEAM JET, STEAM VALVE & STRAINER REMOVAL & REPAIR	COMPLETTANK FARM WEATHER COVER, SHIELD PLUG AND GENERAL HATCH PULLS	COMPLETDECON TANK FARM VALVE BOXES, RISERS & TRENCHES. RADCON SURVEYS	COMPLETHIGH RADIATION ENTRIES ON THE TANK FARM. RADCON SURVEYS.	COMPLETREMOVE & REPAIR REACH RODS,INSTRUMENTS & EQUIPMENT FROM VB.	CLOSED REMOVE & REPAIR REACH RODS, INSTRUMENTS & EQUIPMENT FROM VB.	COMPLETPULL TANK FARM SAMPLES. GLOVEBAG WORK.	COMPLETPULL TANK FARM SAMPLES. NO RESPIRATOR REQUIRED.	COMPLETPULL TANK FARM SAMPLES. RESPIRATOR REQUIRED.	COMPLETLOW RISK JET, PROBE, DIRECTIONAL NOZZEL, CAMERA, WASHBALL WORK.	CLOSED LOW RISK JET, PROBE, DIRECTIONAL NOZZEL, CAMERA, WASHBALL WORK.	COMPLETHIGH RISK JET, PROBE, DIRECTIONAL NOZZEL, CAMERA, WASHBALL WORK.	COMPLETIANK FARM GENERAL WORK ACTIVITIES. RADCON SURVEYS.	COMPLETTANK FARM REACH ACROSS, GLOVEBAG & GLOVEBOX GENERAL WORK	Status Description		

RWPs by Revision for Selected Units
Printed on: 06/15/2005

Begin and End Dates: 01/01/2003 Thru 12/31/2003

COMPLET DECON & CLEANUP OF B-4 VALVEBOX AND SUMP DRAIN, SURVEYS.	0	100	9	5.9	30 66550016
COMPLETORILL I-BEAMS IN RISERS FOR SAMPLING, RADCON SURVEYS.	0	50	0	Ur Oo	31003598 00
COMPLETDECON AND SHIELD TANK FARM VALVEBOX B-2. RADCON SURVEYS.	0	300	103	æ :5	10 785 E001 E
COMPLETREMOVE GLOVEBAGS AND DECON RISERS ON THE TANK FARM. SURVEYS.	0	10	_	23.1	3100358100
COMPLETTANK FARM STEAM JET, STEAM VALVE & STRAINER REMOVAL & REPAIR	0	25	2	83.1	3 1003457 00
COMPLETTANK FARM VALVE BOX B-2 INSPECTIONS AND MEASUREMENTS.	0	100	9	<u>ئ</u> 8	31003403 00
COMPLETINITIAL ENTRY SURVEYS OF TANK FARM VALVE BOXES. B-2	0	450	121	13.9	3100340201
COMPLETREPLACE PRE-FILTERS ON AIR MOVERS ALL WASTESIDE AREAS.	0	25	0	19.1	31003381 W
COMPLEJOPERATIONAL ACTIVITIES IN TANK FARM TENTS. RADCON SURVEYS.	0	25	•	37.6	3100333200
COMPLETABOVE GROUND TRANSFER LINE WORK & INSPECTIONS, RADCON SURVEY	0	200	16	803.3	3100332500
COMPLETLOW RISK JET, PROBE, DIRECTIONAL NOZZEL, CAMERA, WASHBALL WORK.	0	300	37	578.6	3100331900
COMPLETVIDEO INSPECTION OF WM-187. RADCON SURVEYS.	0	100	21	13.7	3100330200
COMPLETSR-21 VIDEO INSPECTION. RADCON SURVEYS.	0	100	0	<u> </u>	31003285 00
COMPLETC-30 REMOVE AIR MOVER HOSE & EQUIPMENT, DECON & REMOVE TENT.	0	50	0	8,01	31003259 00
COMPLETIOW RAD RISK REMOVAL, CUTTING & SIZING OF MATERIAL TANK FARM	0	100	4	79.6	31003255 00
COMPLETREMOVE/REPLACE CORROSION COUPONS TANK FARM. GLOVEBAG WORK.	0	250	_	7.4	3100324501
COMPLETREMOVE/REPLACE CORROSION COUPONS ON THE TANK FARM. TENT WORK		250	20	18.2	31003244 02
CLOSED PULL CORROSION COUPONS FROM TANK FARM VESSELS. TENT WORK.	0	250	provid	17.3	3100324401
COMPLETPERFORM RADCON SURVEYS WITHIN BUILDING 1638	0	20	0	10.4	3100323900
COMPLETDECON/CLEAN TANK FARM VALVE BOX D-5. RADCON SURVEYS.	0	100	4	45,0	3100322201
CLOSED DECON/CLEAN TANK FARM VALVE BOX D-5. RADCON SURVEYS.	0	100	4	36.3	31003222 00
COMPLET DEMO/INSTALLATION OF B-3 & B-4 PROCESS LINES AND VALVES.	0	1,300	95	47.5	3100321802
CLOSED DEMO/INSTALLATION OF B-3 & B-4 PROCESS LINES AND VALVES.	0	1,000	503	171.9	3100321801
CLOSED DEMO/INSTALLATION OF B-3 & B-4 PROCESS LINES AND VALVES.	0	800	692	314.6	31903218 00
COMPLETPULL TANK FARM SOLID SAMPLES & TRANSFERS TO RAL. SURVEYS.	0	300	0	\$	3100315500
COMPLETHIGH RAD RISK WEATHER COVER, SHIELD PLUG AND HATCH PULLS.	0	100	juncé	8,8∂	3 103 146 0:
Status Description	H K	Estimate.	ED F	Mai Hours	RWP No. 31
	740		FARM	CPP TANK FARM	

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Begin and End Dates: 01/01/2003 Thru 12/31/2003

	31003649 00	RAP No.	
8,549.1 2,255	42.9	otal Hours	CPP TANK FARM
2,255	9 50	ED Estimate	FARM
0	•	ie Tre	
	COMPLETTR-20 REMOVAL, EQUIPMENT DEMO, DECON AND BUNKER EXTENSION.	Status Description	

RWPs by Revision for Selected Units
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COMPLETTANK FARM SOIL SAMPLE PREP, ANALYSIS & PACKAGING. SURVEYS	0	440	48	482.1	31004091 01	
COMPLETLOW RAD RISK PUSH PROBE & GAMMA LOG TANK FARM PROBE HOLES	0	100	2)0 060mm	
COMPLETHIGH RAD RISK PUSH PROBE & PULL SAMPLES OF TANK FARM SOIL	0	440	13	818.2	3100408901	
COMPLETABOVE GROUND TRANSFER LINE WORK & INSPECTIONS. RADCON SURVEY	0	50	\$ S	286.7	3 004087 00	
COMPLETDEMO AND INSTALLATION OF C-21 TRANSFER LINE.	Û	200	55	127.1	31064084 M	
COMPLET V.B. C-21 INSTALL AND REMOVAL OF FLOOR COVERING-SHIELDING	0	40	4	3.7	3 6800085	
COMPLETPULL STEAM JET FROM TR-17, TRANSPORT, CUT AND SIZE. SURVEYS	0	480	22		3100400601	
COMPLETTANK FARM SOIL SAMPLING-RADCON SURVEYS	0	25	۷ı	29.6	3100399300	
COMPLETTANK FARM VIDEO INSPECTIONS. RADCON SURVEYS.	0	00	0	25.7	31003964 00	
COMPLETREMOVE/REPLACE CORROSION COUPONS ON THE TANK FARM. TENT WORK	0	250	دی) سو	52.6	31003928 00	
COMPLETLOW RAD RISK DECON OF VALVEBOXES, RISERS & TRENCHES	0	250	40	34.0	31003909 00	
COMPLETINITIAL ENTRY SURVEYS OF TANK FARM VALVE BOXES	0	100	2	9.8	3100390600	
COMPLETHIGH RAD RISK REMOVAL, CUTTING & SIZING OF MATERIAL. FARM	0	100	48	141.8	3100389700	
COMPLETIOW RAD RISK REMOVAL, CUTTING & SIZING OF MATERIAL TANK FARM	0	100	30	215.6	3100389600	
COMPLEJHIGH RADIOLOGICÁL RISK PULLING TANK FARM SAMPLES. SURVEYS	0	150	1.5	389.9	3100388700	
COMPLETIOW RADIOLOGICAL RISK PULLING TANK FARM SAMPLES. SURVEYS	0	250	7	145.0	3 1003886 00	
COMPLETREPLACE HEPA FILTERS ON AIR MOVERS ALL WASTESIDE AREAS	0	25	•	3.0	3100388200	
COMPLETORILL, CHIP & SAW PRECAST BLOCKS TANK FARM. RADCON SURVEYS	0	20	2	24.1	3100383400	
COMPLEJOPERATIONAL ACTIVITIES IN TANK FARM TENTS. RADCON SURVEYS	0	100	2	70.4	00 8895001E	
COMPLETLOW RAD RISK WEATHER COVER, SHIELD PLUG & HATCH PULLS	0	100	٠,	160.1	3100368700	
COMPLETHIGH RAD RISK WEATHER COVER, SHIELD PLUG & HATCH PULLS.	0	100		166,9	3100368601	
CLOSED LOW RISK JET, PROBE, DIRECTIONAL NOZZEL, CAMERA, WASHBALL WORK.	0	300	32	835.8	31003685 DC	
COMPLETHIGH RISK JET, PROBE, DIRECTIONAL NOZZEL, CAMERA, WASHBALL WORK	Q	100	27	449.5	31003684 01	
COMPLETTANK FARM GENERAL WORK ACTIVITIES. RADCON SURVEYS	0	499	7	657.4	31003683 02	
CLOSED TANK FARM GENERAL WORK ACTIVITIES. RADCON SURVEYS.	0	499	147	3,516.2	3100368301	
COMPLETTANK FARM GENERAL REACH ACROSS, GLOVEBAG & GLOVEBOX WORK.	0	499	•	235.2	31003682 OC	
Status Description	Hrs	Fefirmate	ED E	Mal Hours	NO No. 21	
	2		FARM	CPP TANK FARM		

DAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY Page 2 RWPs by Revision for Selected Units

Printed on: 06/15/2005

Begin and End Dates: 01/01/2004 Thru 12/31/2004

	•		813	10,603.2	
COMPLETREMOVE PIPING FROM WM-180 TR-45 & DEMO IN THE LONG LOST TENT	0	240	16	112.4	3100429800
COMPLETTANK FARM VALVE BOX D2 TROUBLE SHOOT SOV-WM-15, RCT SURVEYS.	0	500	0	13.0	31004293 OC
COMPLETPULL WEEDS ON THE TANK FARM. RADCON SURVEYS	0	50	www	96.6	31004237 OC
COMPLETTANK FARM SOIL EXCAVATION AND PAVING PROJECT. RADCON SURVEYS	•	150	N	901.4	31004222 OC
COMPLETABOVE GROUND TRANSFER LINE WORK & INSPECTIONS, SR-1 TO B-3	~	50	•	8,0	31004208 OC
Status Description	Hrs	ED Estimate	E	Mal Hours	RWPNo
	J Ĉ	3	FARM	CPP TANK FARM	

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Printed on: 06/15/2005

Begin and End Dates: 01/01/2005 Thru 06/15/2005